Saskatchewan Ministry of Agriculture

CROP PRODUCTION NEWS

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CROP PRODUCTION

PRODUCTION

Editor's Comments

Ray McVicar, Crops Branch, Saskatchewan Agriculture

So far, 2009 crop production has been difficult in some areas of Saskatchewan. Dry conditions in the central and western areas, wet conditions in the east-central areas and cool temperatures throughout the province have led to variable crop development and growth.

Unusual crop symptoms often result from variable growing conditions. In June, the Crop Protection Laboratory received over 60 sample submissions. Most concerns were diagnosed as cold weather injury, root rot or herbicide injury. Plant or insect identification submissions included downy brome, weevils, cutworms and a larder beetle.

If you have a crop problem that requires further diagnosis, submit your sample to the lab. Instructions on how to properly collect and transport samples and the lab's diagnostic form are located on the Saskatchewan Agriculture website at: www.agriculture.gov.sk.ca. Click on Programs and Services and scroll down to Crop Protection Laboratory Services.

New for this year is an interactive diagnostic form in Excel format that can be filled out electronically and emailed to the lab at: croplab@gov.sk.ca. Please include a copy of the form with your sample and save a copy for your own records. For more information, you can telephone the lab at (306) 787-8130.

For an update on provincial crop progress throughout the growing season, see the weekly Crop Report at www.agriculture.gov.sk.ca/Crop-Report.

NOTE: Throughout this document, you will see that some publications are in blue font and underlined, indicating links to website information. If you are reading this off your computer screen, press the CTRL button and click your cursor on the link to take you directly to the website. ☼

Crop Production News is a biweekly publication prepared primarily by provincial specialists with the Crops Branch of the Saskatchewan Ministry of Agriculture. It is a compilation of articles related to entomology, plant pathology, weed science, soils and agronomy issues.

If you wish to be added to or removed from our mailing list, forward your request by email to: sean.miller@gov.sk.ca

INSIDE

Producers Urged to Use Proper Bait Stations for Rodenticides

By Scott Hartley, Provincial Specialist, Insect and Vertebrate Pests

Management of Richardson's ground squirrels ("gophers") in southern Saskatchewan is labour-intensive, especially if infestations are severe. Because hand-baiting of individual holes is time-consuming, bait stations have been adopted by some people to reduce manual labour. The stations contain a quantity of toxic bait, and must be refilled as bait is consumed by the ground squirrels.

As with any pest-control product, it is very important to follow label directions. Only Rozol-treated grain and ready-to-use strychnine baits are registered for use in bait stations. As the label states, bait stations must be tamperproof and well-secured to prevent exposure of the toxic baits to non-target animals, including wildlife and domestic animals. Tamperproof bait stations can be purchased. Although home-made units can be fabricated, care must be taken to ensure they do not threaten the environment.

Containers that can be easily opened or damaged by wildlife should not be used. Metal stakes are more effective than a wooden lath to secure the bait station. Access holes in the bait station should not exceed 3.5 to 4 inches in diameter to prevent access by larger grain-feeding animals like deer, antelope, livestock or even pets. A smaller hole will also help prevent the bait spilling out, which would present an attractive threat to birds.

One option is a bait station made from PVC pipe (Figure 1). Although this bait station type will require more frequent filling, it will not over-feed the gophers and will result in less spillage.

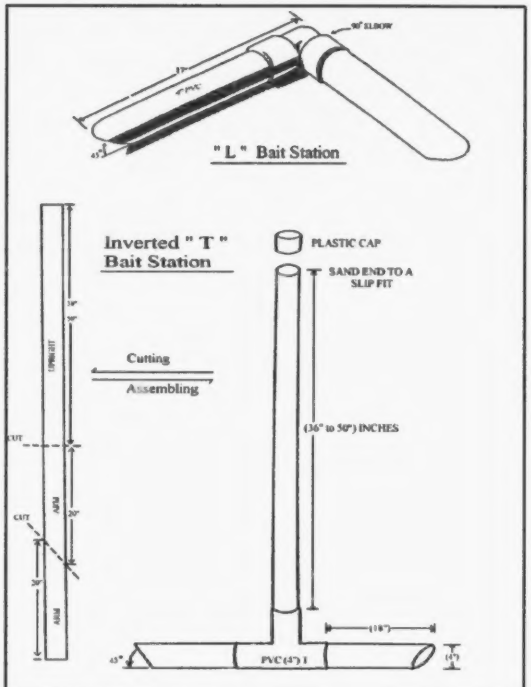

Figure 1: PVC Pipe Bait Station
Source: Alberta Agriculture and Rural Development

All bait stations should be removed before the end of July because, by this time, there is plenty of more-attractive green growth available for food, making the rodenticides less effective. In addition, the ground squirrels are less active above ground as they enter a hibernation phase in their life cycle.

The correct use of toxic compounds is critical to prevent accidental exposure and unacceptable environmental damage. Misuse of toxic baits could also reduce the availability of rodenticides in the future. ☼

Wheat Midge

By Blaine Recksiedler, Provincial Specialist, Cereal Crops, and Scott Hartley, Provincial Specialist, Insect and Vertebrate Pests

The wheat midge (*Sitodiplosis mossellana*) is widely distributed in Saskatchewan, Manitoba, Alberta and adjacent northern U.S. states. The midge larvae feed on developing wheat kernels, resulting in yield loss and grade reduction. The appearance of damaged kernels can range from slightly misshapen to completely shrivelled. Tiny cracks in the seed coat can also occur. In some instances, this could promote sprouting and the release of enzymes that can interfere with baking quality.

Figure 2: Adult Wheat Midge
Source: Saskatchewan Agriculture

In most years, emergence of the adult midge (Figure 2) starts in late June, with peak emergence in July, depending on temperature and moisture conditions. The best estimate of emergence is through the calculation of degree days using 5°C as the base temperature. Precipitation in the spring is necessary for midge development. Research at Agriculture Agri-Food Canada, Saskatoon, indicates that, if less than 20 mm of precipitation is received by the end of May, delayed and erratic emergence of the adult midge will occur.

To help producers estimate the timing of wheat midge emergence, a website was developed to provide daily degree day accumulation (www.cwb.ca/public/en/farmers/weather/midge). As with all forecast maps, the information should be considered a regional estimate only. Temperature accumulation, and especially precipitation, will vary within a region, affecting emergence. Actual emergence will vary and, therefore, individual field monitoring is essential in managing wheat midge.

The most critical period for monitoring wheat crops is from the time the boot splits and the head becomes visible, until anthesis (flowering). When the yellow anthers are extruded from the wheat head, the kernel has developed resistance to larval feeding. Monitoring and control measures need to take into account anthesis variation within individual heads and among tillers. The most important yield contributors of the wheat plant are the primary stem and first two tillers and, therefore, are the most important to protect. The adult female midge lay eggs on the wheat head, usually in the evening when temperatures exceed 10°C and wind speed is less than 10 kph. After about four days, the eggs hatch and the larvae crawl between the glumes to feed on the developing wheat kernels, where they are generally unaffected by an insecticide.

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Wheat Midge
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Insecticide application should be considered when economically warranted. One adult midge for every four to five wheat heads can result in a yield loss of about 10 per cent. One adult midge for every eight to 10 heads could affect grade. With higher commodity prices, one midge for every eight to 10 wheat heads is a reasonable economic threshold at which to take control measures. Insecticides should be applied in the evening when female midge are most active, and the parasitic wasps that prey on the midge are least active. These small black wasps are responsible for a significant level of biological control of the midge. Early morning applications may also produce acceptable results. Application during advanced stages of flowering is discouraged because plants are no longer susceptible and the parasitic wasps may still be active.

Although chemicals are currently the most common method of controlling wheat midge, extensive efforts to develop midge-resistant wheat varieties have been ongoing for many years. Four wheat varieties – three Canadian Western Red Spring (CWRS) and one Canadian Western Extra Strong (CWES) – with improved tolerance to wheat midge damage were registered in 2007. They will be released as varietal blends (VB). Unity VB and Goodeve VB, both CWRS varieties, will be available for commercial production in 2010. The other two varieties, Fieldstar VB (CWRS) and Glencross VB (CWES), will be available for commercial production in 2011. ☼

Diagnostic Tools for In-Crop Plant Nutrient Deficiencies

By Ken Panchuk, Provincial Specialist, Soils

Soil problems and plant nutrient deficiencies can reduce the yield and quality of a crop. Regular crop monitoring is an integral part of crop production, providing an early warning of potential soil or nutrient problems. This allows the producer to deal with problems before they result in reduced yield and/or quality. The use of a diagnostic tool in the later stages of crop development may help identify a problem that can be addressed in subsequent crops.

Crop monitoring provides information to:

- Indicate the need to top-dress nitrogen fertilizer after growing conditions have improved to boost protein in wheat, or to apply nitrogen and/or sulphur to correct deficiencies in canola and mustard;
- Diagnose problem areas or patches in fields with difficult-to-diagnose micronutrient deficiencies.

When plant nutrient deficiency symptoms are clearly visible, yield loss has already occurred. The application of a rescue treatment will recover some of the lost yield, and may prevent further loss or deterioration in crop quality.

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Diagnostic Tools for In-Crop Plant Nutrient and Soil Problems
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One of the most powerful crop monitoring tools is the complete soil-plus-tissue test. This is done by taking representative soil samples and plant tissue samples from both the good and problem areas. The test will greatly increase the ability to determine the nutrient deficiency or soil problem.

It is important to remember that the quality of the data from soil and tissue testing depends on the quality of the sample. Considerable attention must be paid to field variability and preventing sample contamination to ensure that the samples are representative of the area being investigated.

Soil testing laboratories provide detailed procedures for the collection of quality tissue and in-crop soil samples. Procedures vary among laboratories, so follow the instructions provided by your laboratory. Soil samples should be taken from at least two depths in order to properly explore the rooting zone. Take samples from either the zero to six inch and six to 24 inch depths or from the zero to 12 inch and 12 to 24 inch depths.

Plant tissue samples must be taken from plants at the same stage of development and from the same plant parts. The sample must also be large enough (15 to 50 plants or 50 to 75 leaves) to be representative of the area being investigated.

If a micronutrient deficiency is suspected, apply micronutrient test strips to see if they will help correct the problem.

Repeated tests should indicate the same micronutrient deficiency before applying a micronutrient to the whole field. Leave an untreated check strip in the field to determine if the problem is corrected. Contact your soil testing laboratory for forms, sample kits and sampling procedures for nutrient deficiency diagnostic tests.

Sometimes problem areas within a field are caused by other factors such as: diseases, insects, salinity, other soil problems like solonetzic hardpan, or small pockets of varying soil texture, resulting in patches of too much or too little available moisture.

The most important benchmark for any nutrient deficiency corrective action is an "economic response" – that is a yield or quality improvement to the crop that covers the input costs plus some profit. ✿

Yellowing Tops on Pea Plants

By Ken Panchuk, Provincial Specialist, Soils, and
Dale Risula, Provincial Specialist, Special Crops

A rapid growth spurt after a stress condition is the most likely cause of yellowing of the newest leaves of pea plants. For example, rain after a dry period, or warm weather after a cool period, are times when the yellowing of the newest leaves is likely to occur.
Remember:

1. The discolouration is pale green to light yellow.
2. Some pea varieties are more prone to yellowing of the newest leaves than others.
3. The yellowing results from a temporary shortage of nitrogen in the newest leaves.
4. The plant responds to the rapid growth by forming new nodules to increase nitrogen fixation, or by producing new roots to source nitrogen from the soil; and
5. The symptoms will dissipate in about three to four days.☼

Disease Management Using Fungicides

By Dale Risula, Provincial Specialist, Special Crops, and
Faye Dokken, Provincial Specialist, Plant Disease

In any living organism, there may be population segments that are more resistant to adverse conditions. With fungal pathogens, strains have been identified that demonstrate resistance to certain fungicides. Persistent and continued use of the same fungicide will worsen the situation and, eventually, the resistant fungi strain will become dominant in the population.

It is possible to delay fungicide resistance development by understanding how resistance comes about, and by taking precautionary measures to minimize the conditions suitable for its development.

Mitigating the potential for resistance requires changing fungicides: not only a different brand, but also a different fungicide group. Additionally, it is good to incorporate integrated pest management techniques into your program. Using clean seed, seed treatments and crop rotations, and selecting resistant varieties of crops are techniques that can pay dividends.

Sometimes integrated pest management is not enough and fungicide intervention becomes necessary. The best programs include fungicide rotation from one year to the next. Another helpful tactic, where possible, is to tank-mix fungicides that have higher resistance risk with those of another group.

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Disease Management using Fungicides

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Be careful to apply fungicides according to the manufacturer's label, and pay attention to the maximum number of applications per season, sequential applications within the season, and pre-harvest intervals. Scouting fields and properly identifying the disease are necessary to ensure you are spraying the correct fungicide for the problem.

To continue the fight against the development of disease resistance, monitor treated fields. If the disease continues to progress after a properly timed and applied fungicide treatment, you may have resistance. Your crop specialist or certified crop advisor will be able to help you determine if there is a problem.

Table 1: Factors to consider before applying a fungicide.

Estimated Yield (bu/ac) Based on previous years' experience and evaluation of crop	
Expected Yield Savings (per cent) • Favourable environmental conditions for disease and susceptible variety – Up to 20-30 per cent yield increase for cereals	• Less favourable environmental conditions for disease and resistant variety – Up to 5-10 per cent yield increase for cereals
**Expected Gross Return ($/acre) =** Estimated Yield (unit/acre) X Estimated Yield Savings (per cent) X Selling Price ($/unit)	
**Expected Net Return ($/acre) =** Expected Gross Return ($/acre) minus Fungicide application costs	
To Spray	**Not to Spray**
If expected net return per acre is positive	If the expected net return per acre is negative
Cereal Leaf-Spotting Diseases	
– The greatest yield response is if fungicide is applied between flag leaf emergence and flowering. – Pros for application at 3-5 leaf stage: 1. The crop may appear greener; and 2. Benefit occurs when cereal on cereal residue, moist dense canopy, symptoms are on newest leaf, crop prices good, and if early application is followed up with flag leaf application.	– Leaf spotting diseases are ubiquitous – found in almost 100 per cent of fields surveyed in 2008. – Cons for application at 3-5 leaf stage: 1. Crop will grow through disease; weather will naturally control disease as crop progresses; AND 2. May give false sense of security that you don't need to spray again, even though the most important application is at the flag leaf stage.
Fusarium Head Blight (FHB)	
– A fungicide application may be warranted for suppression of FHB: 1. If the pathogen is established in the region; OR 2. If the grower has experienced losses due to FHB in the past 2 years; OR 3. If *Fusarium graminearum* has been isolated from seed samples at greater than 5 per cent; OR 4. If planting next to infected residue from the year before or in a field that had durum or wheat in rotation within the last 2 years AND 5. Conditions have been wet and warm at crop heading stage and are forecast to continue during cereal flowering.	– Fungicide must be applied at early flowering to protect the opening florets. If not applied at the proper stage, the fungicide will not provide adequate or economical protection. – It is too late to apply once symptoms of FHB are observed (FHB is a monocyclic disease). – If conditions have been hot and dry at crop heading stage and these conditions are forecast to continue during cereal flowering, the fungicide application may not be warranted.

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Disease Management using Fungicides
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Sclerotinia of Canola	
– Risk factors include short rotations, disease incidence in previous host, crop density, previous and forecast rainfall, and apothecia development. – Fungicide should coincide with 20-30 per cent bloom to protect canola petals before they drop.	– It is too late to apply fungicide once symptoms are observed.
Pulse Diseases	
– Scout crops for early symptoms and watch for rain and moist conditions that increase the risk of spread and infection of many pulse diseases. – When disease risk warrants, fungicides are usually applied at beginning of flowering.	– Although some fungicide applications are considered routine, such as first ascochyta spray on chickpea, fungicides are not always warranted.
Other Resources	
– 2009 Guide to Crop Protection (www.agriculture.gov.sk.ca/Guide_to_Crop_Protection) – Diseases of Field Crops in Canada (editors Bailey, Gossen, Gugel and Morrall) 2003 – Available from University of Saskatchewan (www.ccde.usask.ca/ExtensionDivision/publications/Ulearn/agriculture/dfcc.html) – To receive a copy of the Canola Council's Canola Disease Identification and Sclerotinia Risk Assessment Card, contact Faye Dokken at 787-4671 or visit www.canola-council.org – For interactive pulse crop fungicide decision support, visit paridss.usask.ca/specialcrop/pulse_diseases/index.html	

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Autotoxicity – A Factor When Managing Alfalfa Stands

By Michel Tremblay, Provincial Specialist, Forage Crops

Autotoxicity is defined as plants inhibiting the growth of neighbouring plants of the same species. Inhibition of growth may take the form of reduced germination, impaired establishment and lower yield. In alfalfa, autotoxicity is caused by a phytotoxic interaction of the phenolic compounds medicarpin, coumarin and chlorogenic acid. These compounds are produced in the roots, crowns and above-ground parts of the alfalfa plant. Autotoxicity can be a factor to consider when over-seeding a thin alfalfa stand or re-establishing alfalfa on ploughed or sprayed fields (Figure 3).

Under laboratory conditions, alfalfa extracts have a negative impact on growth and development of alfalfa. Extracts made from above-ground plant parts inhibited growth more than those made from crowns or roots. In the field, however, other factors, such as competition from existing plants for light, moisture, nutrients and diseases that had accumulated in older stands, can also reduce establishment success and performance of new alfalfa plants. It is speculated that accumulation of autotoxic compounds, in addition to these factors, may be a major contributor to stand-thinning exhibited over time by most alfalfa fields. As the compounds accumulate due to root breakdown and deposition of above-ground material on the soil surface, stands can take on a "spaced appearance" as growth is impaired within the affected area.

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Autotoxicity – A factor When Managing Alfalfa Stands
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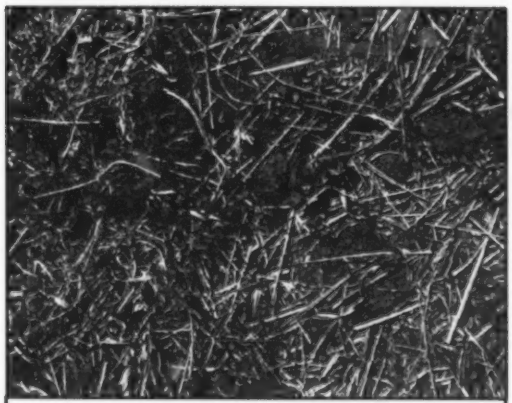

Figure 3: Alfalfa seedlings in grass/alfalfa field sprayed the previous fall with glyphosate.
Source: Saskatchewan Agriculture

Investigators had speculated that age of the stand, interval after stand removal (in the case of stand replacement), crop varieties, soil texture and rainfall may influence the potential degree of autotoxicity under field conditions. However, research has indicated that, because phenolic compounds break down in the soil due to microbial activity and chemical processes, significant differences in autotoxicity do not exist in stands of varying age. Studies have also determined that differences among varieties are not detectible, and plant breeders have agreed that selection for reduced autotoxicity is not feasible. Rainfall can influence the rate of breakdown of phenolic compounds and their concentration in the soil. Soil texture has also been found to be a factor, as heavier textured soils have lower levels of autotoxicity than lighter textured soils.

In the past, recommendations have varied widely on how long to wait following stand removal before reseeding alfalfa. Considering all research results to date, it would appear the appropriate delay period when reseeding into an old alfalfa field is more than two weeks on tilled fields and more than three weeks on fields sprayed with glyphosate. ☼

Clubroot Declared a Pest in Saskatchewan

By Faye Dokken, Provincial Specialist, Plant Disease

Recently, the Saskatchewan Clubroot Initiative was established to represent the Ministry of Agriculture, the Saskatchewan Association of Rural Municipalities and a number of research and industry groups concerned about clubroot. This committee developed a provincial Clubroot Management Plan to promote awareness and identify priorities for clubroot prevention and management. Clubroot, a soil-borne disease that affects the roots of cruciferous field and vegetable crops, is of particular concern because the resting spores of the pathogen can survive in the soil for many years and there are no economical or practical control methods available in field crops like canola. To further strengthen clubroot prevention and surveillance, in June 2009, clubroot was declared a pest in Saskatchewan under *The Pest Control Act*.

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Clubroot Declared a Pest in Saskatchewan
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What does this mean?
Similar to grasshoppers and rats, clubroot is now considered a "pest" in Saskatchewan. This does not mean that clubroot has become a problem in Saskatchewan; it means that we are aware that clubroot is a risk, and, as a result *The Pests Declaration Regulations* have been amended to include clubroot.

The Pest Control Act provides powers to require people who own, occupy or control land to take measures to destroy, control and prevent the spread of clubroot. This may include:

- limiting movement of clubroot resting spores by ensuring sanitation of equipment from infested areas, and avoiding the transport of plant material – seed, straw, etc. – with contaminated soil attached;
- destruction of clubroot or destruction of a susceptible crop;
- practising crop rotation to reduce the viability of existing resting spores over time and limit further increase of clubroot inoculum in the field.

Municipalities will determine how they want to use the powers outlined in *The Pest Control Act* to handle the threat of clubroot. This may include:

- appointing committees to supervise and manage programs;
- passing bylaws to prevent, control or destroy clubroot;
- appointing officers to enforce the *Act*, enter land, monitor crops, perform inspections, collect specimens, take soil samples and limit the production of canola and other susceptible crops.

Farmers are encouraged to scout canola and mustard for clubroot symptoms this July and August, keeping in mind that clubroot-infected plants have deformed roots (galls). The galls reduce the plant's ability to absorb water and nutrients, leading to stunting, wilting, yellowing, premature ripening and, ultimately, yield losses. The disease is favoured by warm, wet soils and low soil pH. Remember, clubroot can spread through the movement of soil contaminated with resting spores, so cleaning field equipment, particularly those originating from known infested areas in Alberta, will help prevent movement of this disease to and within Saskatchewan.

Confirmation of clubroot requires observation of symptoms in a susceptible crop in addition to detection of the pathogen's DNA in a plant or soil sample. Clubroot was not observed on any of the canola crops surveyed in Saskatchewan in 2008; however, the pathogen's DNA was detected in a soil sample from one field. The 2009 canola disease survey will collect additional soil samples for clubroot analysis. If you are a canola grower or know someone who may be interested in volunteering their crop to be surveyed for canola diseases and clubroot, please contact Faye Dokken at 306-787-4671 or faye.dokken@gov.sk.ca.

While it is possible that the clubroot pathogen may be present in the soil, with or without causing disease, proper crop rotation will prevent heavy infestations from developing within a field.
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Clubroot Declared a Pest in Saskatchewan
(Continued from page 10)

Disease scouting will help farmers gauge the health of their fields and investigate the cause of suspicious symptoms. There are other diseases and stresses that can make the plants look sick – the only way to be sure it is clubroot is to check the roots for galls.

For more information on clubroot identification and management:
Visit www.clubroot.ca or www.agriculture.gov.sk.ca/Production and click Crops-Disease, or contact the Agriculture Knowledge Centre at 1-866-457-237

For more information on clubroot as a pest:
Visit www.publications.gov.sk.ca/details.cfm?p=804 or contact Faye Dokken at 306-787-4671 or faye.dokken@gov.sk.ca ✿

Saskatchewan Field Days 2009

By Sherrilyn Phelps, Regional Crops Specialist

Dates	Field Day	Location	Contact
July 4	Saskatchewan Fruit Growers Summer Field Day and Tour	Aylesbury/Craik/Keeler	Patty Stewart 1-877-973-7848
July 4	Organic Crop Improvement Association (OCIA) SK #8 Organic Field Day	Glentworth	Darcy Kimball 306-476-2739 info@ocia8.sk.ca
July 14	Research Field Day	Conservation Learning Centre, Prince Albert	Curtis Braaten 960-1834 Tom Boyle 953-2362 Tom.Boyle@gov.sk.ca
July 14	Treasure Valley Market Field Day	Cadillac	Shannon Chant 778-8291 Shannon.Chant@gov.sk.ca
July 15	Agriculture and Agri-Food Canada (AAFC) Field Day	AAFC Scott	Sherrilyn Phelps 446-7475 Sherrilyn.Phelps@gov.sk.ca John Ippolito 463-5442 John.Ippolito@gov.sk.ca
July 15	Wheatland Field Day Mustard Field Day	Swift Current	Shannon Chant 778-8291 Shannon.Chant@gov.sk.ca
July 16	AAFC Weed Tour	AAFC Scott	Clark Brenzil 787-4673 Clark.Brenzil@gov.sk.ca
July 16	Irrigation Field Day	Canadian –Saskatchewan Irrigation Diversification Centre, Outlook	Sarah Sommerfeld 867-5521 Sarah.Sommerfeld@gov.sk.ca
July 17	AAFC Field Day	AAFC Melfort	Tom Boyle 953-2362 Tom.Boyle@gov.sk.ca

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July 17	Haskap Tour Day 2009	University of Saskatchewan (U of S), Horticulture Field Lab, Saskatoon	Rick Sawatzky 978-8316 www.haskap.ca Forrest Scharf 787-4666 Forrest.Scharf@gov.sk.ca
July 18	OCIA Chapter #6 Organic Field Day	Stenen (Canora)	Kim Tomlin 277-4924 tomilfarm@yahoo.ca,
July 19	OCIA Chapter #4 Organic Field Day	Govin	Robyn Hamann 781-4701 lrhamann@imagewireless.ca
July 21	Crop Development Centre Field Day	Kernen Crop Research Farm, Saskatoon	Rick Holm 966-5009 Blaine Recksiedler 787-4664 Blaine.Recksiedler@gov.sk.ca
July 21	Indian Head Agricultural Research Foundation (IHARF) Field Day	AAFC Indian Head	Daphne Gottselig 694-3587 Daphne.Gottselig@gov.sk.ca IHARF (Judy) 695-4200
July 22	Saskatchewan Pulse Growers Select Field Day (By Invitation Only)	Kernen Crop Research Farm, Saskatoon	Raelene Regier 668-1053 rregier@saskpulse.com
July 22	Glaslyn Field Day	Glaslyn	Sherrilyn Phelps 446-7475 Sherrilyn.Phelps@gov.sk.ca
July 22	OCIA SK #5 Organic Field Day	Muenster, Guernsey	Carol Lowndes 327-4753 jclowndes@xplornet.com
July 23	East Central Research Foundation Field Tour	Canora	Zane Lewchuk 786-1508 Zane.Lewchuk@gov.sk.ca
July 24	AAFC Organic Field Day	AAFC Swift Current	Myriam Fernandez 778-7255 myriam.fernandez@agr.gc.ca
July 29	OCIA SK#1 and University of Manitoba Organic Field Day	Oxbow	Ian Cushon 483-5034 coldridge@sasktel.net
July 29-31	Rare Plant Survey Techniques	Saskatoon	Chet Neufeld 668-3940 info@npss.sk.ca
July 22 (tentative date)	South East Research Foundation Field Day	Redvers	Elaine Moats 848-2856 Elaine.Moats@gov.sk.ca
August 7	Budding and Grafting Workshop	U of S Horticulture Field Lab, Saskatoon	Rick Sawatzky 978-8316
August 22	Seager Wheeler Fruit Festival	Rosthern	Janice Penner 232-5959

The ***Crop Production News*** is a publication of the
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